



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,844	08/04/2003	Toshi Sacki	SUG-017-USA-P	5062
27955	7590	01/11/2006	EXAMINER	
TOWNSEND & BANTA c/o PORTFOLIO IP PO BOX 52050 MINNEAPOLIS, MN 55402			HUSON, MONICA ANNE	
		ART UNIT	PAPER NUMBER	
		1732		

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,844	SAEKI ET AL.	
	Examiner Monica A. Huson	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 23 December 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-13 and 20 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 04 August 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 11403,120604,042505

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 14-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected injection molding apparatus, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 23 December 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how, if the resin is injected through supplying ports by movable injection portions which move from one port to the next, resin can be injected in the next port before the injection in the previous port is finished.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Keller et al. (U.S. Patent 6,245,415). Regarding Claim 1, Keller et al., hereafter “Keller,” show that it is known to carry out an injection molding method wherein one end side in a longitudinal direction of a cavity formed in a metal mold for an injection molding is set to a charging start side of a molten resin, another end side thereof is set to a charging finish side, and a plurality of gates for injecting said molten resin into said cavity are arranged from said charging start side toward the charging finish side (Figure 4), and wherein said molten resin is sequentially injected into said cavity by a predetermined time difference from starting the injection in the gate in said charging start side (Column 3, lines 48-53).

Regarding Claim 2, Keller shows the process as claimed as discussed above in the rejection of claim 1 above, including a method wherein said time difference is adjusted so that the molten resin injected from the other gates becomes in an approximately cooled and solidified state by the time when the molten resin injected from the final gate among a plurality of gates reaches the terminal end in said charging finish side (Column 6, lines 1-27, 50-52).

Regarding Claim 3, Keller shows the process as claimed as discussed above in the rejection of claim 1 above, including a method wherein said time difference is adjusted so that the following molten resin is newly injected from the following gate by the time when the fluid head portion of the anteceding molten resin injected from the anteceding gate among said plurality of gates reaching a position of the following gate (Column 6, lines 1-27; Column 7, lines 37-43).

Regarding Claim 4, Keller shows the process as claimed as discussed above in the rejection of claim 3 above, including a method wherein the injection of said anteceding molten

resin from said anteceding gate is stopped at approximately same time when the injection of said following molten resin from said following gate is started or after a predetermined time has passed (Column 6, lines 1-11).

Regarding Claim 5, Keller shows the process as claimed as discussed above in the rejection of claim 3 above, including a method wherein said time difference is adjusted in such a manner that the fluid head portion of said anteceding molten resin injected from said anteceding gate and the fluid head portion of said following molten resin newly injected from said following gate are brought into contact with each other in a molten state at a position close to said anteceding gate rather than a position of the following gate (Column 7, lines 18-22, 43-46; It is noted that "close" can be interpreted very broadly.).

Regarding Claim 6, Keller shows that it is known to carry out a method, wherein one end side in a longitudinal direction of a cavity formed in a metal mold for an injection molding is set to a charging start side of a molten resin, another end side thereof is set to a charging finish side, and a first gate and a second gate are respectively arranged in said charging start side and said charging finish side (Figure 4); wherein a second molten resin is newly injected from the second gate before a fluid head portion of the first molten resin injected from said first gate reaches a position of said second gate (Column 3, lines 47-53; Column 6, lines 1-6); and wherein the first molten resin becomes an approximately cooled and solidified state by the time when the second molten resin reaches said charging finish side terminal end within said cavity (Column 6, lines 49-52).

Regarding Claim 7, Keller shows that it is known to carry out an injection molding method, wherein one end side in a longitudinal direction of an elongated cavity formed in a

metal mold for an injection molding is set to a charging start side of a molten resin, another end side thereof is set to a charging finish side, and a first gate in the charging start side and a second gate in the charging finish side for injecting said molten resin into the cavity are arranged (Figure 4); wherein the resin is first injected into the cavity from the first gate, the resin is next injected into the cavity from the second gate, and a time difference is provided between injection timings of the first gate and the second gate in such a manner that the molten resin injected from the first gate becomes in an approximately cooled and solidified state by the time when the molten resin injected from the second gate reaches the cavity end in the charging finish side (Column 6, lines 49-52; Column 7, lines 37-43), and wherein a fluid head portion of an anteceding molten resin injected from the first gate is set not to reach a position of the second gate, a projected area of the resin injected from the first gate is made larger than a projected area of the resin injected from the second gate, a cavity portion which is not filled by the resin injected from the first gate is filled by the resin injected from the second gate having the smaller projected area than the projected area of the resin injected from the first gate, and a difference in projected area is provided between the injection resins of the first and second gates so that the projected area of the injection resin from the second gate is about one third or less of the total projected area of the entire cavity, whereby the entire of said cavity is finally filled by the resin (Figure 4; Column 6, lines 1-65; Column 7, lines 1-46).

Regarding Claim 9, Keller shows the process as claimed as discussed above in the rejection of claim 7 above, including a method wherein a first injection unit and a second injection unit are independently connected to said first gate and said second gate, respectively,

the resin is first injected into the cavity from the first gate by the first injection unit, and the resin is next injected into the cavity from the second gate by the second injection unit (Figure 4).

Regarding Claim 20, Keller shows that it is known to carry out an injection molding method, wherein a plurality of resin supplying ports are provided in an elongated cavity in which one end and another end are positioned apart from each other in a vertical direction, stationary injection mechanisms of the same number as the resin supplying portions are placed in said resin supplying ports, a molten resin injection is begun from said injection portion positioned in a lower end in a longitudinal direction of said cavity, the molten resin is sequentially injected from the upper injection portions, and the charging of the cavity is finished by injecting from the uppermost injection portion (Figure 4; Column 3, lines 47-53).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keller, in view of Betters et al. (U.S. Patent 5,762,855). Keller shows the process as claimed as discussed above in the rejection of claim 7 above, including a method wherein said mold for injection molding includes a core portion formed in a protruding shape in a center of the movable mold, and an elongated cavity is formed in said stationary mold in correspondence to the core portion, a mold clamping state is established by fitting the core portion to the cavity and pressing mold faces of

the mold to each other, and the molten resin is thereafter injected from the first gate and the second gate with a time difference (Figure 4; Column 3, lines 48-53). Keller does not specifically show a mold that has a stationary mold and a movable mold. Betters et al., hereafter "Betters," show that it is known to carry out a method wherein said mold is divided into a stationary mold and a movable mold (Column 3, lines 24-27). Betters and Keller are combinable because they are concerned with a similar technical field, namely that of methods of sequential molding. It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Betters' stationary mold and movable mold halves during Keller's molding process in order to most efficiently open and close the two mold halves.

Claims 10, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Ryck (U.S. Patent 3,448,490).

Regarding Claim 10, De Ryck shows that it is known to carry out an injection molding method, wherein an injection portion and a plurality of resin supplying ports for supplying a molten resin to a cavity are relatively movable to each other, wherein the injection portion injects the molten resin from the resin supplying port and thereafter moves to the next resin supplying portion so as to inject, thereby injecting to all the resin supplying portions (Column 1, lines 31-42). De Ryck shows movable supplying ports and a stationary injection portion, but reversal of parts is known to be an obvious modification to one of ordinary skill in the art (MPEP 2144.04 VI (A)). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to make the injection portion movable and the resin ports stationary in De Ryck's molding process in order to accommodate a heavier mold that would be hard to move.

Regarding Claim 11, De Ryck shows the process as claimed as discussed above in the rejection of claim 10 above, including a method wherein said injection portion moves (relatively) to the upper resin supplying ports from the lower end resin supplying port in a plurality of resin supplying ports arranged in a vertical direction, and injects the molten resin into said cavity (Column 2, lines 12-26). De Ryck shows movable supplying ports and a stationary injection portion, but reversal of parts is known to be an obvious modification to one of ordinary skill in the art (MPEP 2144.04 VI (A)). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to make the injection portion movable and the resin ports stationary in De Ryck's molding process in order to accommodate a heavier mold that would be hard to move.

Regarding Claim 13, De Ryck shows the process as claimed as discussed above in the rejection of claim 10 above, including a method wherein before the injection of the molten resin from one resin supplying port is solidified, the resin is injected from the next resin supplying port (Column 2, lines 12-19, 27-30), meeting applicant's claim.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Ryck, in view of Keller. De Ryck shows the process as claimed as discussed above in the rejection of claim 10 above, but he does not show using sensors. Keller shows that it is known to carry out a method wherein the injection of said molten resin from said injection portion to one resin supplying port is finished by a detection sensor provided in a predetermined position of said cavity for detecting a charging amount of molten resin, and said injecting port moves to the other resin supplying ports (Figure 4, element 46). Keller and De Ryck are combinable because they are concerned

with a similar technical field, namely that of sequential molding methods. It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Keller's sensor in De Ryck's molding process in order to accurately fill the mold cavity with the proper material volume.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Monica A Huson
January 6, 2006



MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER